



POSITION PAPER: Confirmation of endotracheal tube placement

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Confirmation of satisfactory endotracheal tube placement must be performed immediately after any endotracheal intubation. Consequences of esophageal intubation may be catastrophic and include cerebral hypoxia.

Clinical confirmation is always performed first. The provider should visualize the tube passing through the vocal cords. This is followed by five point auscultation over the stomach (left upper quadrant) and bilateral lung fields. Rise and fall of the chest with positive pressure ventilation and frosting of the tube assist with confirmation. Providers should be aware that some patients may be able to breath spontaneously in spite of esophageal intubation. Rise and fall of the chest with spontaneous ventilation does not confirm tube placement.

Adjuncts

Adjuncts for confirming tube position include end tidal CO₂ (ETCO₂) monitors/detectors, and esophageal detector devices (EDD).

End tidal CO₂ detectors determine presence of CO₂ at the end of respirations, but not trends or quantitative values. Monitors provide quantitative levels, and may also provide waveforms and trends. To confirm endotracheal tube placement only the presence of CO₂ is required. During low flow states such as cardiac arrest or hypovolemic shock, CO₂ may not be detected even when the endotracheal tube is adequately placed. This is also true in the presence of large amounts secretions, eg hemoptysis or pulmonary edema. Some ETCO₂ detectors have age or size limits.

The EDD is an aspiration device placed over the end of the ET tube. Return of air suggest placement in the trachea. No return indicates esophageal placement.

EDDs are inexpensive and easy to use. They function in the presence of low flow states. However they cannot be used to continuously monitor the position of the ET tube. In many instances providers feel that the tube was initially in place but slipped out when the patient was moved. An EDD will not indicate this problem unless it is reapplied at the proper time.

Confirmation of Endotracheal Tube Placement

Position

1. Protocols for endotracheal intubation should include confirmation of tube placement.
2. Clinical determination of tube placement is the method of choice and cannot be completely replaced by currently existing adjuncts.
3. ETCO₂ and EDD are effective in assisting with the confirmation of tube placement.
4. Either ETCO₂ or EDD may be used to assist ALS providers as determined by the operational medical director in confirming ET tube placement under the following conditions:
 - a. The providers have been trained in the use of the modality
 - b. Protocols indicate sequence and conditions for use of the modality. For example an agency may choose to use both modalities and protocols indicate that EDD is used in cardiac arrest.
5. Quantitative indication (other than estimate) of ETCO₂ is unnecessary for ET confirmation, although the medical director may have determined other reasons for including these devices in the agency equipment. Grant applications for quantitative detectors should be accompanied by indication of need based upon protocols.